REMARKS

Reconsideration of this application, as amended, is respectfully requested.

Claims 1-21 are pending. Claims 1-21 stand rejected.

Claims 1, 3, 8, 10, 15, and 17 have been amended. Support for the amendments is found in the specification, the drawings, and in the claims as originally filed. Applicants submit that the amendments do not add new matter.

Objections to Drawings/Specification

The Specification has been amended to reflect the drawings.

Rejections Under 35 U.S.C. § 112

The Examiner has rejected claims 1-21 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. The Examiner has stated that

> Claims 1, 8, 15 last paragraph is not understood. Therefore, the limitations cannot be ascertained. Which data does applicant refers to by "the data" and does applicant intend to mean – upon copying the contents to the new memory location--?
>
> Claims 3, 10, 17, "around the cache" is not understood. Therefore, the limitations cannot be ascertained.
>
> The art rejection of claims 1-21 is applied as best understood in light of the rejections under 35 U.S.C. § 112, second paragraph discussed above.

(p. 2-3 Office Action 8/1/03)

The claims have been amended to distinctly claim the subject matter which applicant regards as the invention.

Rejections Under 35 U.S.C. 102(a)

Claims 1, 2, 8, 9, 15, and 16 stand rejected under 35 U.S.C. § 102(a) as being anticipated

by applicant's admitted prior art (AAPA) at pages 1-3. The Examiner stated that

> Regarding claim 1, the claimed method merely reads on the fact that AAPA uses
> a moving garbage collection algorithm (MGCA) to recover memory (see pages 1-3). The
> claimed "accessing a reference array...in memory" is met by the mark phase of the
> MGCA. The claimed "determining a new memory location...data object" is met by the
> repoint phase of the MGCA and the claimed "copying the contents...cache memory" is
> met by the copy phase of the MGCA. Clearly the data objects are not stored to a cache
> after the data objects are copied to the new memory location since they are deleted from
> cache in AAPA when not needed.
>
> Regarding claim 2, AAPA copies contents of consecutively referenced data
> objects to consecutive memory locations (see pages 1-3).
>
> Claims 8, 9, 15 and 16 correspond respectively to a computer program product
> and system for the method of claims 1 and 2, thus are rejected for the same reasons stated
> in claims 1 and 2 above.

(p. 3-4, Office Action 8/1/03)

Applicants respectfully submit that claim 1, as amended, is not anticipated by AAPA.

Claim 1, as amended, includes the following limitations:

> A method comprising:
> accessing a reference array, the reference array referencing at least one data object, each
> of the at least one data object having a contents stored in a corresponding memory
> location;
> determining a new memory location for the contents of each of the at least one data
> object; and
> copying the contents of the at least one data object directly to the new memory location
> thus creating a new data object for each of the at least one data object, each new data
> object having a new data object contents, such that upon copying the contents of the at
> least one data object to the new memory location, <u>the new data object contents of each</u>
> <u>new data object does not get stored to a cache memory.</u>

(Amended claim 1) (emphasis added)

Applicants have amended claim 1 to distinctly claim the limitation that the contents of the new data object is not stored to cache, as was the case in the prior art. The AAPA discloses the drawback of the prior art in that data copied to new memory locations will not need to be accessed soon, and therefore, copying such data to the cache needlessly uses CPU and cache resources. The AAPA discloses

> When a live data object is copied to the new memory location, the data copied to the new memory location will not need to be accessed in the future. Therefore, copying the data to the cache in expectation of the data being accessed soon needlessly taxes CPU/cache resources.

(AAPA, paragraph 7)

The AAPA discloses that it is assumed that recently accessed data may need to be accessed again soon. If the data is not used again soon, it is then deleted from the cache. This process, based upon temporal access patterns, is well known in the art and stated explicitly in the AAPA. The AAPA admits only that storing data that will not be required soon, which is what the prior art does, is wasteful and presents a serious drawback of prior art schemes.

The claimed present invention addresses this drawback by copying the contents of the at least one data object directly to the new memory location such that contents of the newly created data object is not copied to cache. This is disclosed at paragraph 23.

Rejections Under 35 U.S.C. § 103(a)

Claims 3-7, 10-14, 17-21 stand rejected under 35 U.S.C. § 103 as being unpatentable over applicant's admitted prior art (AAPA) at pages 1-3, in view of U.S. Patent No. 6,356,270 of Pentkovski, et al. ("Pentkovski").

The Examiner has rejected claims 3-7, 10-14, and 17-21 under 35 U.S.C. § 103 as being

unpatentable over AAPA in view of Pentkovski. The Examiner has stated that

> Regarding claim 3, although AAPA does not show a write combine operation, it is well known in the art to use such an operation for efficient utilization of buffers for a sequence of non-temporal stores to scattered locations (see the abstract). Therefore, it would have been obvious to one of ordinary skill in the art to include the claimed feature while implementing the method of AAPA in order to utilize buffers efficiently as taught by Pentkovski.

> Claim 4 merely reads on the fact that any central processing units has specific capability. Therefore, the amount of data copied has to depend upon the central processing unit parameters as claimed.

> Claim 5 is met by the fact that the MGCA of AAPA is dynamic.

> Regarding claim 6, AAPA discloses Java and CLI run-time environment (see page 1).

> Regarding claim 7, clearly the method of claim 6 is implemented as the copy phase of the MGCA of AAPA since the computing system of AAPA uses MGCA to collect garbage.

> Claims 10-14 and 17-21 correspond respectively to a computer program product and system for the method of claims 3-7, thus are rejected for the same reasons stated in claims 3-7 above.

(p. 4-5, Office Action 8/1/03)

Applicants respectfully submit, however, that claims 3-7, 10-14, and 17-21 are not

obvious under 35 U.S.C. § 103, in view of AAPA and Pentkovski, due to their direct or indirect

dependency on amended claims 1, 8, and 15, respectively.

It is respectfully submitted that in view of the amendments and arguments set forth herein, the applicable rejections and objections have been overcome. If there are any additional charges, please charge Deposit Account No. 02-2666 for any fee deficiency that may be due.

Respectfully submitted,

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